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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

CHANG, VICTOR S

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/549,618	Applicant(s) SASAGAWA ET AL.	
	Examiner Victor S. Chang	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 5, 9 and 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-8 and 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Introduction

1. Applicants' amendments and remarks filed on 4/23/2008 have been entered. Claim 1 has been amended. Claims 1-4, 6-8 and 11-15 are active.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. In response to the amendments, the grounds of rejection have been updated as set forth below. Rejections not maintained are withdrawn.

Election/Restrictions

4. Regarding the status of claim 6, applicants argue at Remarks pages 13-14 that
"Species A1 encompasses all of the block copolymers recited in claim 6, including a block copolymer of formula (1) (i.e., S) and a block copolymer of formula (6) (i.e., H-S-H).
Also, in the Office Action dated March 19, 2007, the Examiner states that "since claim 6 recites various copolymer species, including restricted species S-H (claim 5), additional species election in Category A becomes necessary as set forth below" and "Please elect one of the species listed in claims 1 and 6" (see page 2 of the Office Action dated March 19, 2007). This statement of the Examiner confirms that Species A1 encompasses all of the block copolymers recited in claim 6, because, if Species A1 encompassed only a copolymer S (i.e., a copolymer consisting of only one block S), a further election as requested by the Examiner would be meaningless.
On the basis of the above understanding that Species A1 encompasses all of the block copolymers recited in claim 6, the Applicants elected a block copolymer of formula (6) (i.e., H-S-H) as the species of Category A in the previous response of April 19, 2007."

After a careful reconsideration, the examiner agrees that since elected Species A1 is copolymer block S which excludes H block (e.g., A2 in election requirement mailed 10/13/2006), which reads on species (1) of S in claim 6, claim 6 is elected. However the examiner disagrees with

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applicants' analysis that "Species A1 encompasses all of the block copolymers recited in claim 6". For example, A1 (S block) is clearly distinct from A2 (S-H diblock of claim 5), and applicants have elected A1 (S block) without traverse in the response filed 11/13/2006. Further, since applicant has already elected A1 (S block), the restriction requirement mailed 3/19/2007 is unnecessary and therefore withdrawn. Finally, since the elected Species A1 (S block) of claim 1 is the same as Species (1) (S block) of claim 6, claim 6 is rejected for the same reasons set forth for the rejection of claim 1.

Regarding the status of claim 11, applicants argue at Remarks page 14 that

"From the context of claim 11 reproduced above, it is apparent that the compound emphasized by underlining, i.e., "a hydrogenation product thereof", means "a hydrogenation product of a block copolymer comprised of a homopolymer block of vinyl aromatic monomer units and at least one polymer block selected from the group consisting of a homopolymer block of conjugated diene monomer units and a copolymer block comprised of vinyl aromatic monomer units and conjugated diene monomer units"."

After a careful reconsideration, the examiner agrees that since claim 12 is dependent upon claim 11, therefore claim 11 is elected together with claim 12. Nevertheless, claim 11 is also rejected for the same reasons set forth for the rejection of claim 12. No new grounds of rejection are required.

Rejections Based on Prior Art

5. Claims 1-4, 6 and 13-15 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Karande et al. [WO 02/068529 A2].

Karande's invention relates to an article prepared from a blend comprising 0 to 50 w% of hydrogenated random styrene butadiene copolymer (S block) [page 3]. Foamed articles are used for various cushions and footwear including shoe soles, etc. [page 11].

For claims 1, 6 and 14, regarding hydrogenated component (A), i.e., hydrogenated S block, Karande is silent about the weight ratio between the styrene and butadiene monomers, the vinyl bond content with respect to diene monomer (i.e., monomer ratio between styrene and butadiene), the peak loss tangent (mechanical property) and the specific gravity (density) of the foam. However, since Karande teaches substantially the same subject matter of the same structure and composition for the same end use as the claimed invention, a workable ranges of abovementioned foam cushion property result-effective features are deemed to be either anticipated by Karande, or obviously provided by practicing the invention of prior art, dictated by the same end use requirements. As to component (B), since it is optional, it is not a required limitation by the prior art, therefore it has not been given a patentable weight.

For claim 2, regarding polymer (B), Karande discloses that the blend comprising from 30 to 95 w% of propylene copolymer, such as ethylene propylene copolymer (olefin polymer), for an improved impact resistance [pages 3 and 8], i.e., a rubbery polymer.

For claim 3, the absence of a crystallization peak to hydrogenated random styrene butadiene copolymer is deemed to be an inherent material property of the same chemistry of a random copolymer composition.

For claim 4, the examiner takes Official notice that the monomer distribution along the backbone of a random copolymer inherently has a taper distribution caused by the inherent

difference in the monomer reactivities, as evidenced by Karande's description of the term "substantially random" [pages 4-5].

For claim 13, since Karande discloses that ethylene propylene copolymer is used for impact improvement, a workable impact resilience is deemed to be either anticipated, or an obvious routine optimization to one skilled in the art, dictated by the same end use (e.g., cushions, shoe soles, etc.) as the instant invention.

For claim 15, Karande discloses that the foamed articles are used for various cushions (shock absorber).

6. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karande et al. [WO 02/068529 A2] in view of Shibata et al. [US 5191024].

The teachings of Karande are again relied upon as set forth above.

For claims 7 and 8, Karande is silent about using a hydrogenated styrene butadiene copolymer bonded to a modifier having an amine functional group. However, Shibata's invention relates to a modified hydrogenated diene block copolymer having excellent processability and weather resistance, impact resistance and flexibility, etc. [col. 1, ll. 5-13]. The modified block of alkenyl (vinyl) aromatic compound-conjugated diene copolymer having at least one functional group selected from the group consisting of acid anhydride group, carboxyl group, hydroxyl group, amino group [col. 2, ll. 2-26]. It would have been obvious to one of ordinary skill in the art to modify Karande with a modified hydrogenated styrene butadiene copolymer with an amino group of Shibata, motivated by the desire to obtain various improved properties.

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7. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Karande et al. [WO 02/068529 A2].

The teachings of Karande are again relied upon as set forth above.

For claims 11 and 12, Karande discloses that the blend may include styrenic block copolymers, such as styrene-butadiene-styrene, etc., in an amount up to 50 w% [pages 3 and 9]. Absence of any supposed errors being pointed out by applicants' response, the Official notice in the prior Office action "hydrogenation of styrene-butadiene-styrene block copolymer improves the aging resistance" is now taken as admitted prior art. It would have been obvious to one skilled in the art to modify the styrene-butadiene-styrene block copolymer of Karande with hydrogenation, motivated by the desire to improve the durability of the foamed article.

Response to Arguments

8. In view of the final amended claim language, the obvious-type double patenting directed to US. Appl. No. 10/513926, now issued US Patent No. 7371805, is withdrawn. Applicants' arguments directed to rejections not maintained are moot.

Applicants argue at Remarks page 21 that

"Karande '529 has no description such that the hydrogenated random styrene/butadiene copolymer is obtained by hydrogenating an unhydrogenated copolymer containing at least one copolymer block S as recited in feature (I). On this point, a more detailed explanation is given below.

(I-1) S is comprised of vinyl aromatic monomer units and conjugated diene monomer units.

(I-2) S has a vinyl bond content of from 5 % to less than 40 % as measured with respect to conjugated diene monomer units.

Karande '529 has no description about a polymer block having the above-mentioned characteristic (I-1), i.e., a polymer block comprised of vinyl aromatic monomer units and conjugated diene monomer units. In this connection, it should be noted that the EXAMPLES of Karande '529 do not disclose a polymer comprising both vinyl aromatic

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monomer units and conjugated diene monomer units, let alone a polymer containing a polymer block comprised of vinyl aromatic monomer units and conjugated diene monomer units.

With respect to characteristic (I-2) of the polymer block S, Karande '529 has no teaching or suggestion about this characteristic. The reason for this is that Karande '529 has no description about a polymer block comprised of vinyl aromatic monomer units and conjugated diene monomer units and, hence, no information regarding vinyl bond content as recited in characteristic (I-2) can be obtained from Karande '529."

However, regarding (I-1), applicants are reminded that styrene is inherently a vinyl aromatic monomer, and butadiene is inherently a diene monomer. Since Karande '529 teaches a hydrogenated styrene-butadiene copolymer, i.e., at least one copolymer block S, it is unseen that Karande does not anticipate (I-1). Regarding (I-2), the vinyl content with respect to diene monomer units is interpreted as merely reciting the monomer ratio between the styrene and butadiene monomers. Since the monomer ratio inherent effects the property of copolymer, the examiner maintains that a workable monomer ratio is deemed to be an obvious routine optimization to one of ordinary skill in the art, motivated by the desire to obtain required properties for the same end use as the claimed invention.

Applicants argue at page 22 that

"Karande '529 has no description about a specific range of the styrene monomer unit content of the hydrogenated copolymer. In this connection, it should be noted that the EXAMPLES of Karande '529 never disclose a polymer having a styrene monomer unit content within the range (more than 40 % by weight to 60 % by weight) recited in feature (II). Specifically, as polymers containing styrene monomer units, the EXAMPLES of Karande '529 discloses polymers EPS 1, EPS 2 and ES 1 (see pages 12-15 of Karande '529). The styrene monomer unit contents of these polymer are described in Table 1 appearing at page 15 of Karande '529, which shows that the styrene monomer unit contents of polymers EPS 1, EPS 2 and ES 1 are respectively 14 % by weight, 24 % by weight, 30 % by weight, none of which is within range (more than 40 % by weight to 60 % by weight) recited in feature (II)."

However, the exemplified polymers are not styrene-butadiene copolymers. Applicants' argument is clearly misplaced.

Applicants argue at page 23 that

“Karande '529 never teaches or suggests that this feature is essential for achieving a good balance of flexibility, low temperature characteristics (such as flexibility at low temperatures) and shock-absorbing property (low impact resilience) in the polymer foam.”

However, low temperature characteristics are absent from the claim language. As to the shock-absorbing property, since Karande '529 teaches the same subject matter of the same structure and composition, and for the same use as cushions as the claimed invention, selecting a composition having a workable flexibility or shock-absorbing property is deemed to be an obvious routine optimization, motivated by the desire to obtain the same required properties for the same end use.

Conclusion

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor S. Chang whose telephone number is 571-272-1474. The examiner can normally be reached on 7:00 am - 5:00 pm, Tuesday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Victor S Chang/
Primary Examiner, Art Unit 1794